

May 11, 2005

John Gantner  
3943 Eagle Parkway  
Redding, California 96001

1<sup>st</sup> Quarter 2005 Ground Water Monitoring Report  
1<sup>st</sup> Quarter 2005 Operations and Maintenance Report  
Former Service Station  
1680 Mendocino Avenue  
Santa Rosa, California  
ECM Project #98-439-14

Dear Mr. Gantner:

This report provides the results of ground water monitoring at the former service station at 1680 Mendocino Avenue in Santa Rosa, California (Figure 1, Appendix A). It also provides the first quarter 2005 report of operations and maintenance for the ground water extraction (GWE) system operating at the site.

### **Ground Water Monitoring**

On March 9, 2005, ECM personnel visited the site for semi-annual monitoring. Ground water elevations were measured and ground water samples were collected from all five monitoring wells (MW-1 through MW-5) in accordance with the site monitoring program. The well locations are shown on Figure 2 (Appendix A).

Well heads and well vaults were observed to be in good condition. Free-phase hydrocarbons were not observed in any of the wells. Water level data is shown in Table 1 (Appendix B). Water levels are measured monthly in monitoring wells MW-1 through MW-5 and piezometers PZ-1 through PZ-3. A ground water elevation contour map using ground water elevations from March 1, 2005 is included as Figure 2 (Appendix A).

The samples were forwarded under chain of custody record to Entech Analytical Labs Inc., of Santa Clara, California for analysis. Analytical results for ground water are included in Table 2 (Appendix B). Ground water samples were collected in accordance with ECM Standard Operating Procedure - Ground Water Sampling (Appendix E). Purge water and decon rinseate were transferred to the system holding tank for treatment and permitted discharge. The chain of custody document and laboratory analytical report are included as Appendix C. The water sampling data sheets are included as Appendix D.

Analytical results for samples collected during the March 9, 2005 monitoring event were consistent with results from previous monitoring events. Monitoring wells MW-2, MW-3, and

MW-4 represent the most impacted area of the site. Moderate to high concentrations of gasoline and BTEX were detected in the samples from wells MW-2, MW-3, and MW-4. Concentrations in MW-3 and MW-4 were typical of previous results. Contaminant concentrations in the sample from MW-2 were relatively low compared to previous results for MW-2. More data points are necessary before a trend can be confirmed in MW-2.

Analytical results for samples collected from wells MW-1 and MW-5 were below detection limits for all contaminants of concern. This is reflective of a reduction trend for contamination in well MW-1. MW-5 is located approximately 350 ft. downgradient of the site. Results for samples from MW-5 have consistently been low or below detection limits for all contaminants of concern.

The next ground water monitoring event is scheduled for September, 2005.

### **System Operations and Maintenance**

System layout and remediation pad details are shown in Figure 2, Appendix A. The system consists of Grundfos submersible, electric pumps set at approximately 34 feet below ground surface in wells EX-1, EX-2, and EX-3. The pumps have been adjusted to extract ground water at approximately 15 gallons per minute (gpm). Extracted ground water is pumped through three 2,000 pound activated carbon vessels and discharged to the sanitary sewer under permit from the Santa Rosa Subregional Water Reclamation System.

GWE system construction was completed in September 2004, and operated for system testing and sampling between September 3 and November 11, 2004. Continuous operations began on November 11, 2004. The system ran continuously during the first quarter of 2005, with downtime only for routine maintenance. Between system startup and April 5, 2005, the system extracted 2,465,264 gallons of ground water, according to system totalizer readings (Table 4, Appendix B).

GWE system performance can be evaluated by the mass of hydrocarbons removed. Since hydrocarbons have a low solubility in water, mass of hydrocarbons removed by a ground water extraction system is typically low relative to the quantity of hydrocarbons sorbed to soil. Another measure of system performance is the system's ability to control the offsite migration of impacted ground water.

Mass of hydrocarbon removed is calculated using system totalizer readings and ground water influent lab data. Between December 30, 2004 and April 5, 2005 a total of 2,134,315 gallons was extracted by the system, at between 9 and 26 gallons per minute. Analytical results for the influent samples collected on January 5, 2005, February 11, 2005, and April 7, 2005 reported concentrations of gasoline at 3,100 ppb, 370 ppb, and 2,100 ppb respectively. Influent analytical results are shown in Table 3, Appendix B. Analytical laboratory reports are included in

Appendix C. Assuming analytical results are typical for the period, a total mass of approximately 12 kg of hydrocarbon was extracted by the system during the fourth quarter of 2004. Cumulative hydrocarbon removal is depicted in Graph 1, Appendix B.

Piezometers PZ-1 through PZ-3 have been installed to measure drawdown generated by the extraction system. Drawdown is used to measure the ability of the system to control offsite migration of impacted water. Water levels in piezometers, extraction wells, and ground water wells are measured on a monthly basis to verify system performance. Significant drawdown in the piezometers indicates the system is controlling offsite plume migration. The ground water contour map from March 1, 2005, included as Figure 3, Appendix A, depicts the influence of the remediation system.

Thank you for the opportunity to provide environmental services to you. Please call if you have any questions.

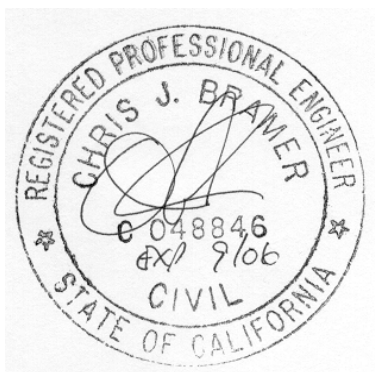
Sincerely,  
ECM Group



David Hazard  
Environmental Scientist



Chris Bramer  
Professional Engineer #C048846



Appendices:

- A - Figures
- B - Tables
- C - Chain of Custody and Laboratory Analytical Report
- D - Water Sampling Data Sheets
- E - Standard Operating Procedures

cc: Joan Fleck, North Coast Regional Water Quality Control Board  
Michael Caesar, Environmental Health and Safety @ SRJC

## **APPENDIX A**

### **FIGURES**

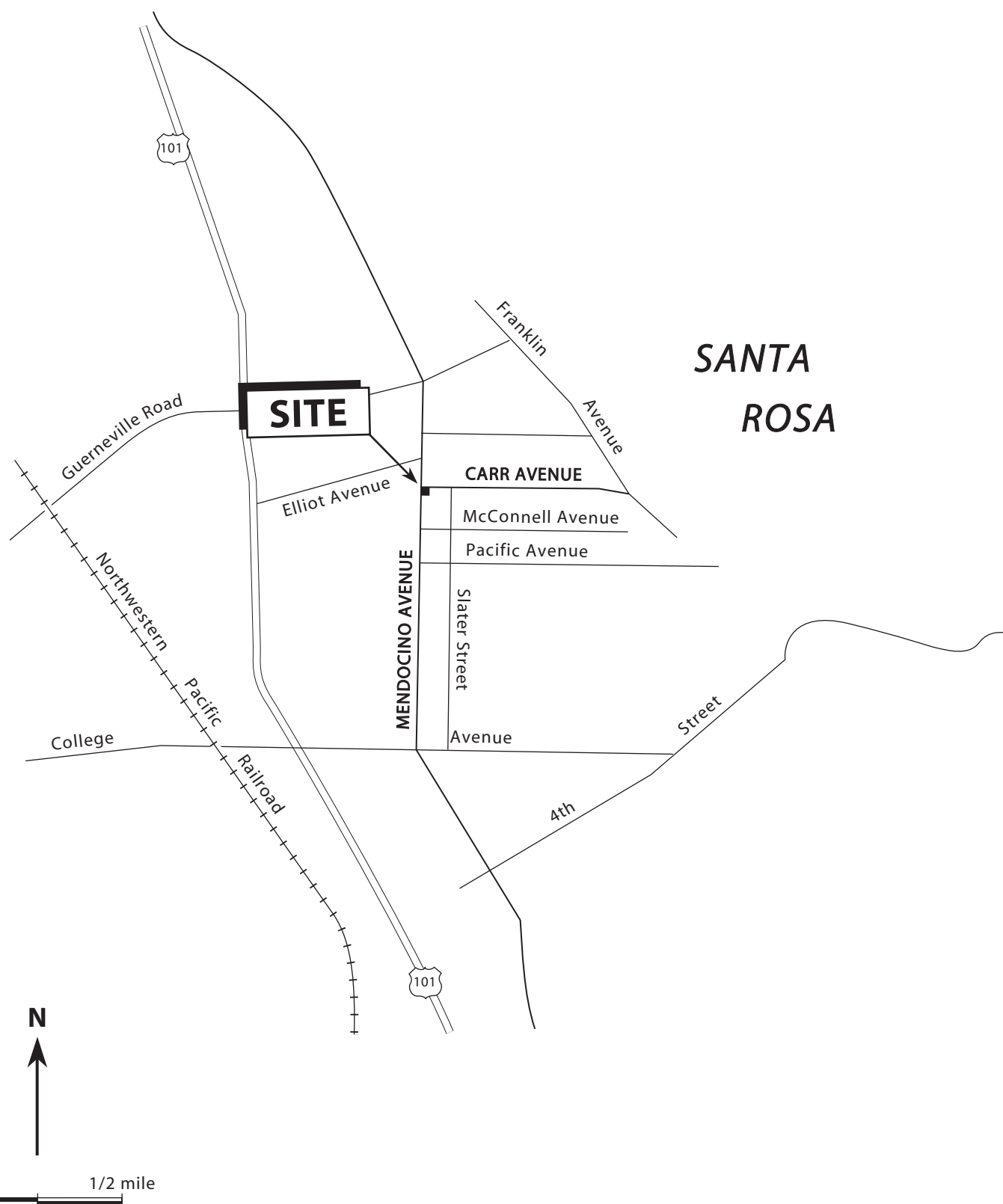
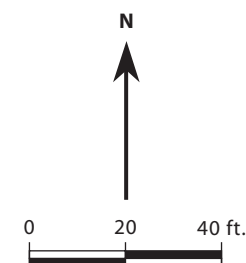
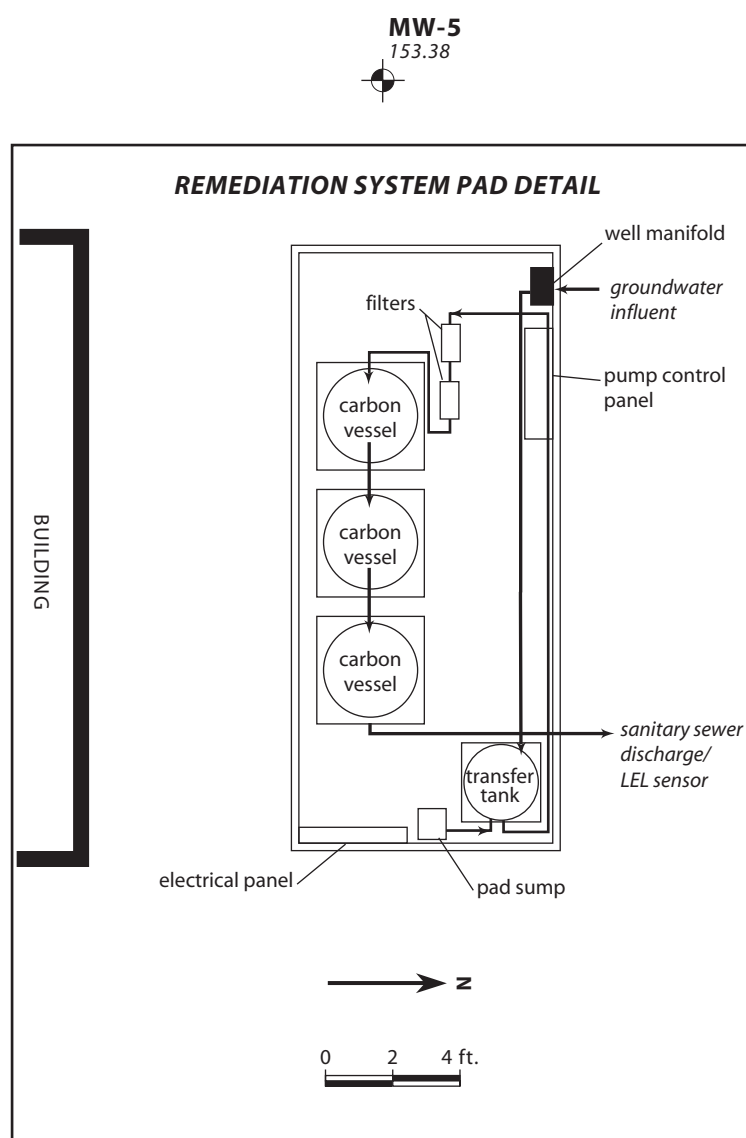
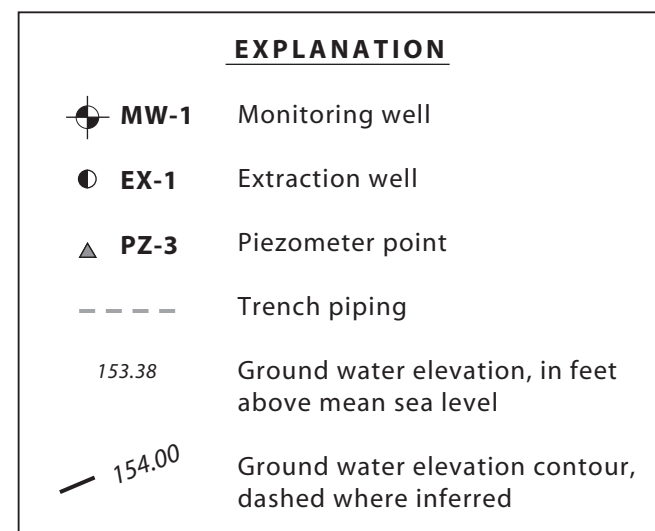
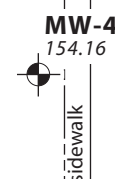


Figure 1. Site Location Map - Former Service Station, 1680 Mendocino Avenue, Santa Rosa, California



SANTA ROSA  
JUNIOR  
COLLEGE  
(lawn)



MENDOCINO AVENUE

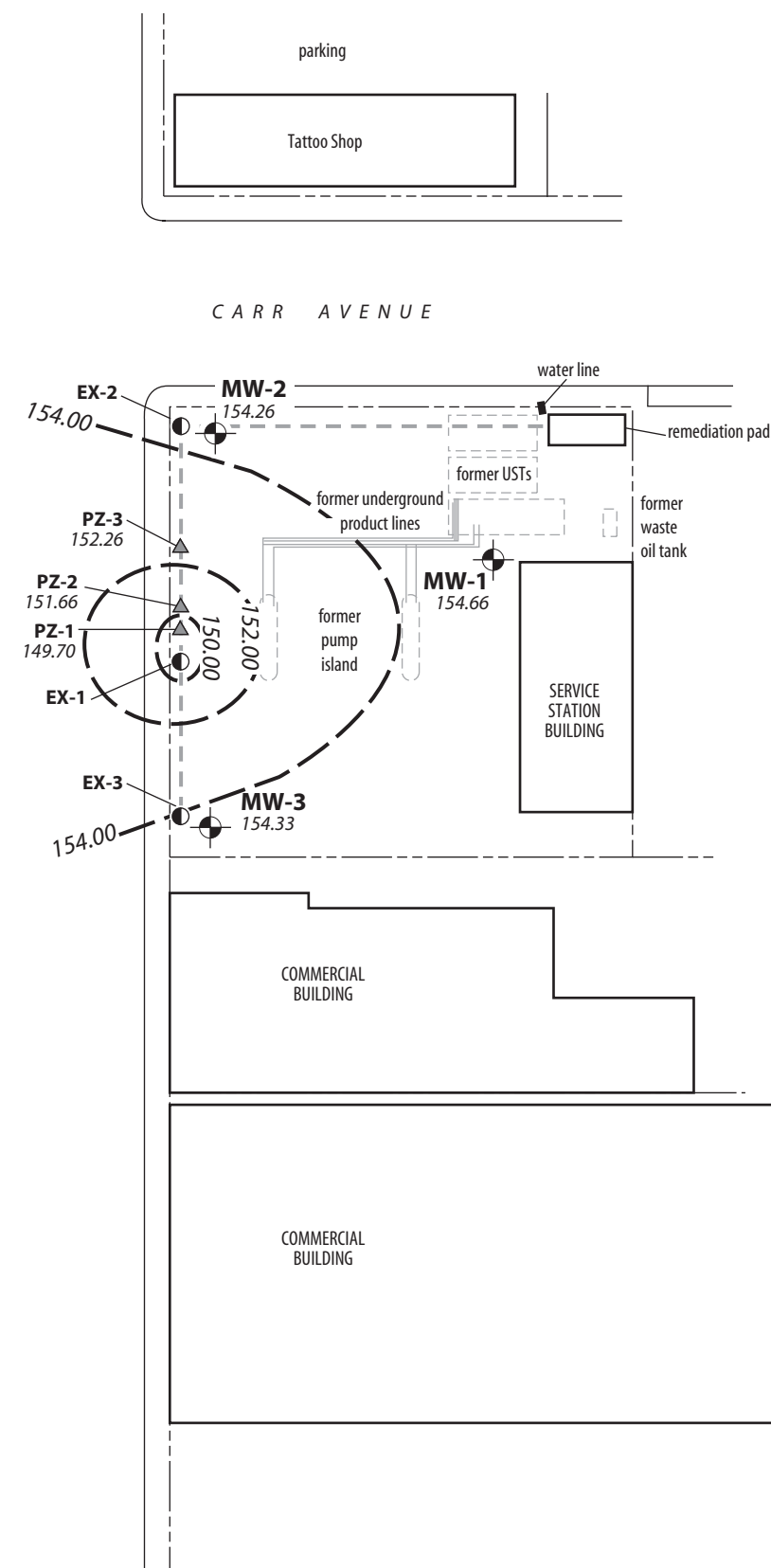


Figure 2. Monitoring Well Locations, Ground Water Contour Map and Remediation System Layout - March 1, 2005 - Former Service Station, 1680 Mendocino Avenue, Santa Rosa, California

## **Appendix B**

### **Tables and Graphs**

Table 1. Monitoring Well Survey Data, Well Construction Details, and Depth to Ground Water - 1680 Mendocino Avenue, Santa Rosa, California

Well ID	Sample Date	TOC (Ft, msl)	DTW (Ft)	GWE (Ft, msl)	Screen Interval	Sand Pack Interval	Bentonite/ Grout Interval	Notes					
MW-1	11/23/1998	158.90	9.70	149.20	5 - 15	4 - 15	0 - 4						
	3/9/1999		4.51	154.39									
	6/28/1999		8.71	150.19									
	9/29/1999		10.48	148.82									
	12/30/1999		10.15	148.75									
	3/29/2000		6.17	152.73									
	7/11/2000		9.05	149.85									
	10/27/2000		11.17	147.73									
	12/15/2000		9.59	149.31									
	3/7/2001		5.24	153.66									
	6/20/2001		9.47	149.43									
	9/11/2001		11.00	147.90									
	12/10/2001	161.56	7.92	150.98				Resurveyed for EDF compliance, January 9, 2002.					
	3/6/2002		6.79	154.77									
	6/5/2002		8.76	152.80									
	9/23/2002		10.75	150.81									
	3/26/2003		6.46	155.10									
	10/3/2003		10.50	151.06									
	3/10/2004		5.89	155.67									
	9/17/2004		10.76	150.80									
	3/1/2005		6.90	154.66									
	3/9/2005		6.18	155.38									



Table 1. Monitoring Well Survey Data, Well Construction Details, and Depth to Ground Water - 1680 Mendocino Avenue, Santa Rosa, California

Well ID	Sample Date	TOC (Ft, msl)	DTW (Ft)	GWE (Ft, msl)	Screen Interval	Sand Pack Interval	Bentonite/ Grout Interval	Notes
MW-2	11/23/1998	158.58	9.49	149.09	5 - 15	4 - 15	0 - 4	
	3/9/1999		5.81	152.77				
	6/28/1999		8.66	149.92				
	9/29/1999		10.53	148.05				
	12/30/1999		10.33	148.25				
	3/29/2000		6.41	152.17				
	7/11/2000		8.98	149.60				
	10/27/2000		10.56	148.02				
	12/15/2000		9.22	149.36				
	3/7/2001		5.00	153.58				
	6/20/2001		9.14	149.44				
	9/11/2001		12.10	146.48				
	12/10/2001	161.10	5.65	152.93				Resurveyed for EDF compliance, January 9, 2002.
	3/6/2002		6.31	154.79				
	6/5/2002		8.42	152.68				
	9/23/2002		10.35	150.75				
	3/26/2003		6.22	154.88				
	10/3/2003		10.26	150.84				
	3/10/2004		5.62	155.48				
	9/17/2004		10.28	150.82				
	3/1/2005		6.84	154.26				
	3/9/2005		5.92	155.18				

Table 1. Monitoring Well Survey Data, Well Construction Details, and Depth to Ground Water - 1680 Mendocino Avenue, Santa Rosa, California

Well ID	Sample Date	TOC (Ft, msl)	DTW (Ft)	GWE (Ft, msl)	Screen Interval	Sand Pack Interval	Bentonite/ Grout Interval	Notes
MW-3	11/23/1998	159.31	10.59	148.72	5 - 15	4 - 15	0 - 4	
	3/9/1999		5.49	153.82				
	6/28/1999		9.42	149.89				
	9/29/1999		11.46	147.85				
	12/30/1999		11.07	148.24				
	3/29/2000		7.06	152.25				
	7/11/2000		9.74	149.57				
	10/27/2000	159.38	11.81	147.57				TOCs surveyed on October 20, 2000.
	12/15/2000		10.81	148.57				
	3/7/2001		5.98	153.40				
	6/20/2001		10.18	149.20				
	9/11/2001		10.80	148.58				
	12/10/2001	161.95	7.75	151.63				Resurveyed for EDF compliance, January 9, 2002.
	3/6/2002		7.31	154.64				
	6/5/2002		9.47	152.48				
	9/23/2002		11.86	150.09				
	3/26/2003		7.20	154.75				
	10/3/2003		11.35	150.60				
	3/10/2004		6.54	155.41				
	9/17/2004		11.90	150.05				
	3/1/2005		7.62	154.33				
	3/9/2005		6.63	155.32				

Table 1. Monitoring Well Survey Data, Well Construction Details, and Depth to Ground Water - 1680 Mendocino Avenue, Santa Rosa, California

Well ID	Sample Date	TOC (Ft, msl)	DTW (Ft)	GWE (Ft, msl)	Screen Interval	Sand Pack Interval	Bentonite/ Grout Interval	Notes
<b>MW-4</b>	10/27/2000	159.30	12.56	146.74	5 - 20	4 - 20	0 - 4	TOCs surveyed on October 20, 2000.
	12/15/2000		12.05	147.25				
	3/7/2001		7.37	151.93				
	6/20/2001		11.44	147.86				
	9/11/2001		12.88	146.42				
	12/10/2001	161.87	7.45	151.85				Resurveyed for EDF compliance, January 9, 2002.
	3/6/2002		7.85	154.02				
	6/5/2002		10.37	151.50				
	9/23/2002		12.11	149.76				
	3/26/2003		8.25	153.62				
	10/3/2003		12.00	149.87				
	3/10/2004		7.50	154.37				
	9/17/2004		12.22	149.65				
	<b>3/1/2005</b>		<b>7.71</b>	<b>154.16</b>				
	<b>3/9/2005</b>		<b>7.51</b>	<b>154.36</b>				
<b>MW-5</b>	10/27/2000	156.88	11.74	145.14	5 - 20	4 - 20	0 - 4	TOCs surveyed on October 20, 2000.
	12/15/2000		11.15	145.73				
	3/16/2001		7.27	149.61				
	6/20/2001		10.69	146.19				
	9/11/2001		12.00	144.88				
	12/10/2001	159.45	7.00	149.88				Resurveyed for EDF compliance, January 9, 2002.
	3/6/2002		7.70	151.75				
	6/5/2002		9.48	149.97				
	9/23/2002		---	---				Well inaccessible.
	3/26/2003		7.53	151.92				
	10/3/2003		11.10	148.35				
	3/10/2004		6.53	152.92				
	9/17/2004		11.61	147.84				
	<b>3/1/2005</b>		<b>6.07</b>	<b>153.38</b>				
	<b>3/9/2005</b>		<b>6.47</b>	<b>152.98</b>				
<b>PZ-1</b>	<b>3/1/2005</b>	161.89	<b>12.19</b>	<b>149.70</b>				
<b>PZ-2</b>	<b>3/1/2005</b>	161.77	<b>10.11</b>	<b>151.66</b>				

Table 1. Monitoring Well Survey Data, Well Construction Details, and Depth to Ground Water - 1680 Mendocino Avenue, Santa Rosa, California

Well ID	Sample Date	TOC (Ft, msl)	DTW (Ft)	GWE (Ft, msl)	Screen Interval	Sand Pack Interval	Bentonite/Grout Interval	Notes
<b>PZ-3</b>	<b>3/1/2005</b>	161.81	<b>9.25</b>	<b>152.56</b>				

**Explanation:**

TOC = Top of Casing

ft = feet

msl = Mean Sea Level

DTW = Depth to Water

GWE = Ground Water Elevation

Table 2. Analytical Results for Ground Water - Former Service Station, 1680 Mendocino Avenue, Santa Rosa, California

Sample ID	Date Sampled	TPH (G)	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
		<----- ppb ----->						
MW-1	11/30/1998	16,000	140	28	900	1,900	<250	
	3/9/1999	4,000	53	8.7	74	79	40	
	6/28/1999	2,400	12	1.1	150	110	19	
	9/29/1999	16,000	180	<50	930	770	<500	
	12/30/1999	10,000	190	43	1,000	710	<100	
	3/29/2000	5,100	120	36	370	190	<100	
	7/11/2000	2,800	110	49	160	80	<50	
	10/27/2000	2,600	34	7.4	120	45	<2.0	
	12/15/2000	7,300	120	39	300	180	<20	
	3/7/2001	4,300	43	15	400	170	223	
	6/20/2001	670	21	9.5	83	42	<5.0	
	9/11/2001	1,700	130	64	110	75	16	
	12/10/2001	2,500	280	160	140	200	9.7	
	3/6/2002	<50	<0.50	<0.50	<0.50	<0.50	<2.0	
	6/5/2002	<50	<0.50	<0.50	<0.50	<0.50	2.3	
	9/23/2002	1,800	240	120	140	440	1.6	
	3/26/2003	380	43	11	26	31	2	
	10/3/2003	640	140	16	39	54	<1	
	3/10/2004	260	45	14	14	34.6	1	
	9/17/2004	220	47	8.6	22	38	<1	
	3/9/2005	<25	<0.5	<0.5	<0.5	<0.5	<1	

Table 2. Analytical Results for Ground Water - Former Service Station, 1680 Mendocino Avenue, Santa Rosa, California

Sample ID	Date Sampled	TPH (G)	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
		<----- ppb ----->						
MW-2	11/30/1998	27,000	2,600	200	1,700	3,700	640	
	3/9/1999	49,000	3,400	270	3,400	4,700	530	
	6/28/1999	37,000	4,200	250	3,500	5,000	780	
	9/29/1999	36,000	4,000	230	3,800	4,000	530	
	12/30/1999	31,000	2,900	150	4,400	5,100	<500	
	3/29/2000	26,000	3,100	150	3,100	2,400	520	
	7/11/2000	25,000	2,600	140	3,600	2,200	650	
	10/27/2000	38,000	3,400	130	3,100	2,900	<20	
	12/15/2000	49,000	2,700	110	3,000	2,800	<50	
	3/7/2001	26,000	3,200	88	3,500	2,000	18	Tertiary butanol detected at 12 ppb.
	6/20/2001	21,000	1,900	130	3,500	2,300	<50	
	9/11/2001	22,000	1,600	140	4,100	1,600	<50	
	12/10/2001	20,000	1,900	200	3,000	1,500	<100	
	3/6/2002	<50	9.4	<0.50	<0.50	<0.50	2.7	
	6/5/2002	8,900	410	29	1,400	400	6.6	
	9/23/2002	18,000	1,100	160	2,200	1,100	<100	
	3/26/2003	14,000	810	57	2,500	496	64	
	10/3/2003	20,000	930	61	3,100	470	<40	
	3/10/2004	8,300	410	34	1,200	170	<20	
	9/17/2004	8,600	420	36	1,300	150	<40	
	3/9/2005	1,400	31	2.3	99	9.5	<2	

Table 2. Analytical Results for Ground Water - Former Service Station, 1680 Mendocino Avenue, Santa Rosa, California

Sample ID	Date Sampled	TPH (G)	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
		<----- ppb ----->						
MW-3	11/30/1998	56,000	6,600	4,600	1,400	5,800	1,100	
	3/9/1999	220,000	24,000	15,000	5,000	23,000	2,400	
	6/28/1999	89,000	13,000	6,800	2,800	12,000	1,500	
	9/29/1999	100,000	13,000	4,100	3,000	12,000	1,400	
	12/30/1999	58,000	11,000	5,100	2,400	11,000	890	
	3/29/2000	48,000	10,000	3,300	2,000	8,600	1,100	
	7/11/2000	64,000	14,000	2,100	2,600	10,000	<2,500	
	10/27/2000	88,000	16,000	6,100	2,700	10,000	790	Tertiary Butanol detected at 400 ppb. See laboratory analytic reports for detection limits.
	12/15/2000	120,000	15,000	5,800	2,300	9,600	830	
	3/7/2001	44,000	11,000	4,900	2,100	8,200	460	
	6/20/2001	55,000	12,000	3,900	2,500	10,000	340	
	9/11/2001	48,000	13,000	2,100	2,600	9,700	390	
	12/10/2001	76,000	16,000	6,800	3,600	13,000	<500	
	3/6/2002	53,000	11,000	4,800	2,300	12,000	540	
	6/5/2002	25,000	6,300	2,400	1,900	7,500	340	
	9/23/2002	39,000	6,800	950	1,200	5,000	1,100	
	3/26/2003	54,000	7,800	2,500	3,100	11,400	310	TAME was detected at 23 ppb.
	10/3/2003	50,000	9,500	720	2,300	6,400	430	
	3/10/2004	40,000	8,500	800	2,800	9,300	220	
	9/17/2004	40,000	9,200	700	2,600	7,900	290	
	3/9/2005	41,000	5,300	1,200	2,700	11,000	<200	

Table 2. Analytical Results for Ground Water - Former Service Station, 1680 Mendocino Avenue, Santa Rosa, California

Sample ID	Date Sampled	TPH (G)	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
		<----- ppb ----->						
MW-4	10/27/2000	18,000	6,200	13	79	15	1,100	Tertiary Butanol detected at 560 ppb.
	12/15/2000	22,000	4,400	<25	110	30	1,700	
	3/7/2001	10,000	4,400	<50	89	55	600	Tertiary butanol detected at 280 ppb.
	6/20/2001	16,000	5,300	50	130	<50	900	
	9/11/2001	8,200	2,800	51	56	<25	2,600	
	12/10/2001	11,000	3,300	68	140	120	1,400	
	3/6/2002	6,600	1,800	23	110	<10	810	
	6/5/2002	7,800	2,700	33	85	23	340	
	9/23/2002	11,000	2,400	27	56	16	980	
	3/26/2003	6,600	1,600	20	64	16	210	TAME detected at 2 ppb.
	10/3/2003	12,000	2,100	<50	80	<100	230	
	3/10/2004	4,600	1,100	28	34	<20	160	
	9/17/2004	3,600	730	13	17	<20	110	
	3/9/2005	8,000	860	17	40	<10	83	



Table 2. Analytical Results for Ground Water - Former Service Station, 1680 Mendocino Avenue, Santa Rosa, California

Sample ID	Date Sampled	TPH (G)	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	Notes
		<----- ppb ----->						
MW-5	10/27/2000	<50	<0.5	<0.5	<0.5	<0.5	<2.0	
	12/15/2000	<50	<0.5	<0.5	<0.5	<0.5	<0.5	
	3/16/2001	92	5.4	5.6	2.3	6.2	<2.0	
	6/20/2001	<50	<0.5	<0.5	<0.5	<0.5	<5.0	
	9/11/2001	91	14	11	4	12	<5.0	
	12/10/2001	56	8.2	1.6	1.8	3.3	<5	
	3/6/2002	<50	<0.50	<0.50	<0.50	<0.50	<2.0	
	6/5/2002	<50	<0.50	<0.50	<0.50	<0.50	2.8	
	9/23/025	—	—	—	—	—	---	Well inaccessible.
	3/26/2003	65	12	3	<1	7	<1	
	10/3/2003	110	23	3.6	7.4	12	<1	No other oxygenates were detected.
	3/10/2004	85	15	9.8	5.9	19	1	No other oxygenates were detected.
	9/17/2004	43	6.8	2.2	3.7	8.4	<1	
	3/9/2005	<25	<0.5	<0.5	<0.5	<0.5	<1	

**Explanation:**

TPPH(G) = Total Purgeable Petroleum Hydrocarbons as Gasoline

MTBE = Methyl tert butyl ether

ppb = parts per billion

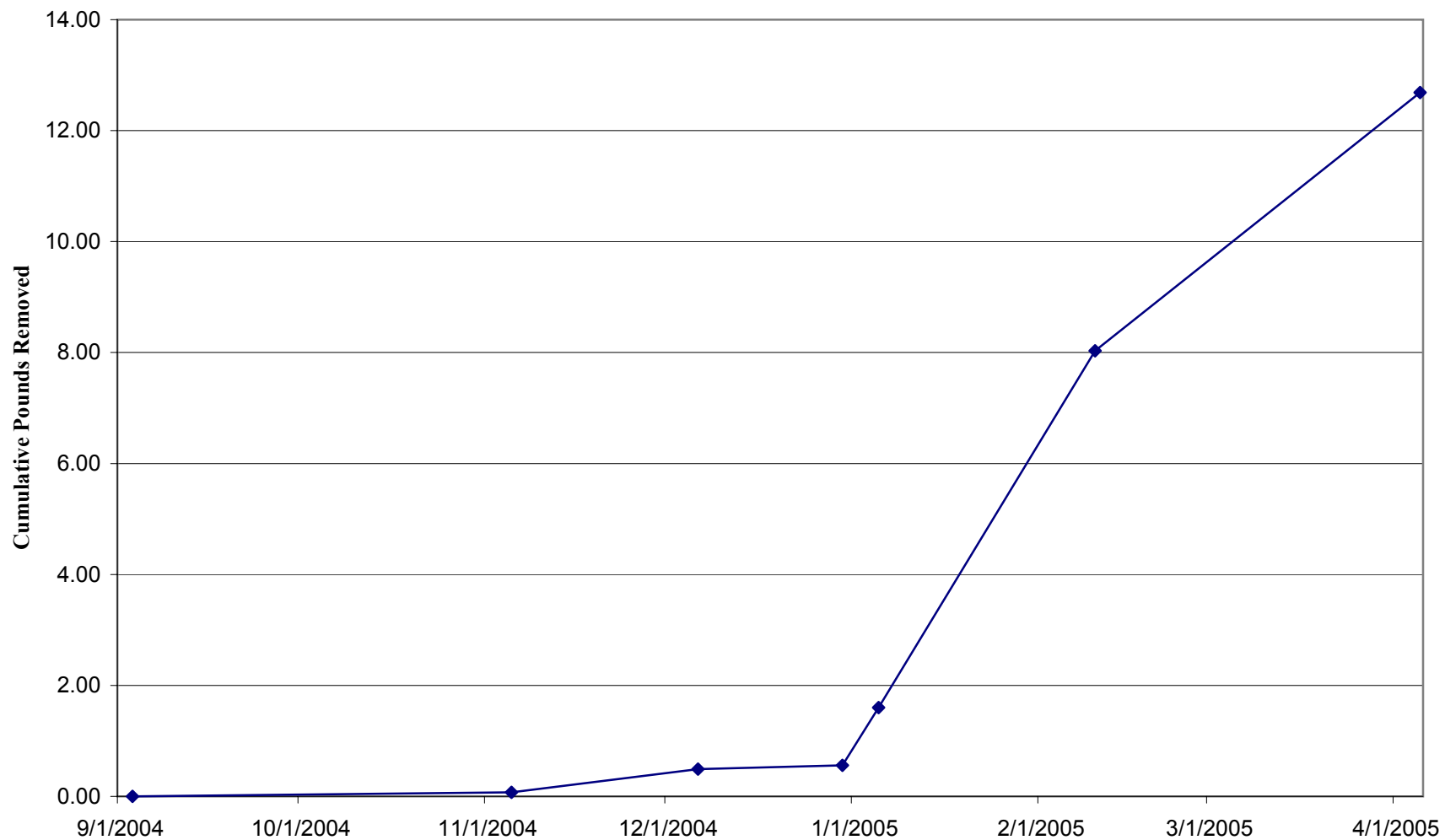
Table 3. Analytical Results for Influent Samples - 1680 Mendocino Avenue, Santa Rosa, California

Sample Date	TPH(G)	Benzene	Toluene	Ethyl Benzene	Xylenes	MTBE	Notes
	<-----ppb----->						
9/3/2004	4,800	480	34	800	170	83	
11/5/2004	450	35	1	35	6	9	
12/7/2004	360	28	2	66	15	9	
1/5/2005	3,100	83	12	340	68	8	
2/11/2005	370	9	2	21	16	7	
4/7/2005	2,100	38	5	130	42	<5	

Table 4. Ground Water Extraction System Performance Data - 1680 Mendocino Avenue, Santa Rosa, California

<b>Date</b>	<b>totalizer reading</b>	<b>flow (gallons)</b>	<b>influent concentration TPH(G) ppb</b>	<b>hydrocarbon removal (kg)</b>	<b>cumulative hydrocarbon removal (kg)</b>
9/3/2004	1,091		4,800		0.00
11/5/2004	8,372	7,281	450	0.07	0.07
12/6/2004	280,863	272,491	360	0.42	0.49
12/30/2004	330,949	50,086	360	0.07	0.56
<b>1/5/2005</b>	<b>489,904</b>	<b>158,955</b>	<b>3,100</b>	<b>1.04</b>	<b>1.60</b>
<b>2/10/2005</b>	<b>1,469,620</b>	<b>979,716</b>	<b>370</b>	<b>6.43</b>	<b>8.03</b>
<b>4/5/2005</b>	<b>2,465,264</b>	<b>995,644</b>	<b>2,100</b>	<b>4.65</b>	<b>12.69</b>

### Cumulative Hydrocarbon Removal



Graph 1: Cumulative pounds of hydrocarbon removed by ground water extraction (GWE) system - 1680 Mendocino Avenue, Santa Rosa, California

**APPENDIX C**  
**LABORATORY ANALYTICAL RESULTS AND CHAIN OF CUSTODY RECORD**

# Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Jim Green  
ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510

Certificate ID: 41929 - 1/13/2005 9:52:17 PM

Order Number: 41929  
Project Name: Gantner  
Project Number: 98-439-60

Date Received: 1/7/2005 1:03:07 PM  
P.O. Number: 98-439-60

## Certificate of Analysis - Final Report

On January 07, 2005, samples were received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

<u>Matrix</u>	<u>Test</u>	<u>Method</u>	<u>Comments</u>
Liquid	8260Petroleum	EPA 8260B	
	TPH as Gasoline	EPA 8015 MOD. (Purgeable)	

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346).  
If you have any questions regarding this report, please call us at 408-588-0200 ext. 225.

Sincerely,



Laurie Glantz-Murphy  
Laboratory Director

# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510  
Attn: Jim Green

Project Number: 98-439-60  
Project Name: Gantner  
Date Received: 1/7/2005  
P.O. Number: 98-439-60  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 41929-001 Sample ID: Influent

Matrix: Liquid Sample Date: 1/5/2005 12:15 PM

Method: EPA 8015 MOD. (Purgeable)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	3100		5	250	µg/L	N/A	N/A	01/10/2005	WGC4050110

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene 257\*\*\* 65 - 135

Analyzed by: mruan

Reviewed by: MTU

\*\*\* High surrogate recovery for BFB due to matrix interference.

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	83		1	0.5	µg/L	N/A	N/A	01/10/2005	WMS2050110
Toluene	12		1	0.5	µg/L	N/A	N/A	01/10/2005	WMS2050110
Ethyl Benzene	340		1	0.5	µg/L	N/A	N/A	01/10/2005	WMS2050110
Xylenes, Total	68		1	0.5	µg/L	N/A	N/A	01/10/2005	WMS2050110
Methyl-t-butyl Ether	7.9		1	1	µg/L	N/A	N/A	01/10/2005	WMS2050110
Ethyl-t-butyl Ether	ND		1	5	µg/L	N/A	N/A	01/10/2005	WMS2050110
tert-Butanol (TBA)	ND		1	10	µg/L	N/A	N/A	01/10/2005	WMS2050110
Diisopropyl Ether	ND		1	5	µg/L	N/A	N/A	01/10/2005	WMS2050110
tert-Amyl Methyl Ether	ND		1	5	µg/L	N/A	N/A	01/10/2005	WMS2050110

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene 98.8 75 - 125

Dibromofluoromethane 105 75 - 125

Toluene-d8 103 75 - 125

Analyzed by: MTu

Reviewed by: GGUEORGUIEVA

# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510  
Attn: Jim Green

Project Number: 98-439-60  
Project Name: Gantner  
Date Received: 1/7/2005  
P.O. Number: 98-439-60  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 41929-002 Sample ID: Effluent

Matrix: Liquid Sample Date: 1/5/2005 12:20 PM

Method: EPA 8015 MOD. (Purgeable)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	50	µg/L	N/A	N/A	01/10/2005	WGC4050110

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	98.5	65 - 135

Analyzed by: mruan

Reviewed by: MTU

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	µg/L	N/A	N/A	01/10/2005	WMS2050110
Toluene	ND		1	0.5	µg/L	N/A	N/A	01/10/2005	WMS2050110
Ethyl Benzene	ND		1	0.5	µg/L	N/A	N/A	01/10/2005	WMS2050110
Xylenes, Total	ND		1	0.5	µg/L	N/A	N/A	01/10/2005	WMS2050110
Methyl-t-butyl Ether	ND		1	1	µg/L	N/A	N/A	01/10/2005	WMS2050110
Ethyl-t-butyl Ether	ND		1	5	µg/L	N/A	N/A	01/10/2005	WMS2050110
tert-Butanol (TBA)	ND		1	10	µg/L	N/A	N/A	01/10/2005	WMS2050110
Diisopropyl Ether	ND		1	5	µg/L	N/A	N/A	01/10/2005	WMS2050110
tert-Amyl Methyl Ether	ND		1	5	µg/L	N/A	N/A	01/10/2005	WMS2050110

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	99.4	75 - 125
Dibromofluoromethane	104	75 - 125
Toluene-d8	105	75 - 125

Analyzed by: MTu

Reviewed by: GGUEORGUIEVA



# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

## Quality Control - Method Blank

### Liquid

Validated by: XBIAN - 01/11/05

QC Batch ID: WMS2050110

Analysis Date: 1/10/2005

#### Method Blank

#### Method: EPA 8260B

Parameter	Result	DF	PQLR	Units
Benzene	ND	1	0.5	µg/L
Diisopropyl Ether	ND	1	5	µg/L
Ethyl Benzene	ND	1	0.5	µg/L
Ethyl-t-butyl Ether	ND	1	5	µg/L
Methyl-t-butyl Ether	ND	1	1	µg/L
tert-Amyl Methyl Ether	ND	1	5	µg/L
tert-Butanol (TBA)	ND	1	10	µg/L
Toluene	ND	1	0.5	µg/L
Xylenes, Total	ND	1	0.5	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	98.7	75 - 125
Dibromofluoromethane	103	75 - 125
Toluene-d8	105	75 - 125

## Quality Control - Laboratory Control Spike / Duplicate Results

### Liquid

Reviewed by: XBIAN - 01/11/05

QC Batch ID: WMS2050110

Analysis Date: 1/10/2005

#### LCS

#### Method: EPA 8260B

Conc. Units: µg/L

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
Benzene	<0.2	20.0	20.5	LCS	1/10/2005	102			80 - 120
Methyl-t-butyl Ether	< 1	20.0	22.8	LCS	1/10/2005	114			80 - 120
Toluene	<0.2	20.0	21.0	LCS	1/10/2005	105			80 - 120

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	102	75 - 125
Dibromofluoromethane	108	75 - 125
Toluene-d8	102	75 - 125

#### LCSD

#### Method: EPA 8260B

Conc. Units: µg/L

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
Benzene	<0.2	20.0	20.4	LCSD	1/10/2005	102	0.5	25	80 - 120
Methyl-t-butyl Ether	< 1	20.0	22.6	LCSD	1/10/2005	113	1.0	25	80 - 120
Toluene	<0.2	20.0	20.5	LCSD	1/10/2005	103	2.6	25	80 - 120

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	102	75 - 125
Dibromofluoromethane	108	75 - 125
Toluene-d8	100	75 - 125

# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

## Quality Control - Method Blank

### Liquid

Validated by: MTU - 01/12/05

QC Batch ID: WGC4050110

Analysis Date: 1/10/2005

#### Method Blank

#### Method: EPA 8015 MOD. (Purgeable)

Parameter	Result	DF	PQLR	Units
TPH as Gasoline	ND	1	50	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	94.0	65 - 135

## Quality Control - Laboratory Control Spike / Duplicate Results

### Liquid

Reviewed by: MTU - 01/12/05

QC Batch ID: WGC4050110

Analysis Date: 1/10/2005

#### LCS

#### Method: EPA 8015 MOD. (Purgeable)

Conc. Units: µg/L

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<5	250	239	LCS	1/10/2005	95.7			65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	102	65 - 135

#### LCSD

#### Method: EPA 8015 MOD. (Purgeable)

Conc. Units: µg/L

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<5	250	239	LCSD	1/10/2005	95.6	0.2	25	65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	102	65 - 135

# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

## Quality Control - Matrix Spike / Duplicate Results Liquid

Reviewed by: MTU - 01/12/05

QC Batch ID: WGC4050110

Analysis Date: 1/10/2005

### Method EPA 8015 MOD. (Purgeable)

								Conc. Units: µg/L	
Parameter	Sample Number	Sample Result	Spike Amount	Spike Result	QC Type	Analysis Date	% Recovery	RPD	Recovery Limits
MS	41926-005								
TPH as Gasoline		ND	250	237	MS	1/10/2005	94.9		65 - 135
Surrogate	% Recovery	Control Limits							
4-Bromofluorobenzene	103	65 - 135							

MSD	SampleNumber:	41926-005									
TPH as Gasoline			ND	250	236	MSD	1/10/2005	94.6	0.3	25	65 - 135
Surrogate	% Recovery	Control Limits									
4-Bromofluorobenzene	105	65 - 135									

### Method EPA 8020

								Conc. Units: µg/L	
Parameter	Sample Number	Sample Result	Spike Amount	Spike Result	QC Type	Analysis Date	% Recovery	RPD	Recovery Limits
MS	41926-005								
Benzene		ND	2.8	2.94	MS	1/10/2005	105		65 - 135
Ethyl Benzene		ND	3.7	3.27	MS	1/10/2005	89.1		65 - 135
Toluene		ND	16	16.4	MS	1/10/2005	100		65 - 135
Xylenes, total		ND	20	17.9	MS	1/10/2005	91.4		65 - 135

MSD	SampleNumber:	41926-005								
Benzene		ND	2.8	3.28	MSD	1/10/2005	117	10.9	25	65 - 135
Ethyl Benzene		ND	3.7	3.30	MSD	1/10/2005	89.9	0.9	25	65 - 135
Toluene		ND	16	16.6	MSD	1/10/2005	101	0.8	25	65 - 135
Xylenes, total		ND	20	18.3	MSD	1/10/2005	93.7	2.4	25	65 - 135



# Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

## FAX COVER SHEET

DATE: 1-14-05

TO: Company: ECM Group

Attention: Jim Green

FAX: (707) 751-0653

FROM: ENTECH

PAGES (INCLUDING COVER): 8

MEMO: 41929

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IF THERE ARE ANY PROBLEMS WITH THIS  
TRANSMISSION, PLEASE CALL (408) 588-0200

# Entech Analytical Labs, Inc.

3334 Victor Court • Santa Clara, CA 95054 • (408) 588-0200 • Fax (408) 588-0201

Jim Green  
ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510

Certificate ID: 42386 - 2/17/2005 6:35:20 PM

Order Number: 42386  
Project Name: Gantner  
Project Number: 98-439-60

Date Received: 2/11/2005 12:29:03 PM  
P.O. Number: 98-439-60

## Certificate of Analysis - Final Report

On February 11, 2005, samples were received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

<u>Matrix</u>	<u>Test</u>	<u>Method</u>	<u>Comments</u>
Liquid	8260Petroleum	EPA 8260B	
	TPH as Gasoline - GC/MS	GC-MS	

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346).  
If you have any questions regarding this report, please call us at 408-588-0200 ext. 225.

Sincerely,



Laurie Glantz-Murphy  
Laboratory Director

# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510  
Attn: Jim Green

Project Number: 98-439-60  
Project Name: Gantner  
Date Received: 2/11/2005  
P.O. Number: 98-439-60  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 42386-001 Sample ID: MID-A

Matrix: Liquid Sample Date: 2/10/2005 10:10 AM

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	µg/L	N/A	N/A	02/17/2005	WMS2050217
Toluene	ND		1	0.5	µg/L	N/A	N/A	02/17/2005	WMS2050217
Ethyl Benzene	ND		1	0.5	µg/L	N/A	N/A	02/17/2005	WMS2050217
Xylenes, Total	ND		1	0.5	µg/L	N/A	N/A	02/17/2005	WMS2050217
Methyl-t-butyl Ether	1.1		1	1	µg/L	N/A	N/A	02/17/2005	WMS2050217
Ethyl-t-butyl Ether	ND		1	5	µg/L	N/A	N/A	02/17/2005	WMS2050217
tert-Butanol (TBA)	41		1	10	µg/L	N/A	N/A	02/17/2005	WMS2050217
Diisopropyl Ether	ND		1	5	µg/L	N/A	N/A	02/17/2005	WMS2050217
tert-Amyl Methyl Ether	ND		1	5	µg/L	N/A	N/A	02/17/2005	WMS2050217

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	88.2	75 - 125
Dibromofluoromethane	107	75 - 125
Toluene-d8	100	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	25	µg/L	N/A	N/A	02/17/2005	WMS2050217

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	92.2	75 - 125
Dibromofluoromethane	104	75 - 125
Toluene-d8	96.9	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510  
Attn: Jim Green

Project Number: 98-439-60  
Project Name: Gantner  
Date Received: 2/11/2005  
P.O. Number: 98-439-60  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 42386-002 Sample ID: MID-B

Matrix: Liquid Sample Date: 2/10/2005 10:15 AM

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	µg/L	N/A	N/A	02/17/2005	WMS2050217
Toluene	ND		1	0.5	µg/L	N/A	N/A	02/17/2005	WMS2050217
Ethyl Benzene	ND		1	0.5	µg/L	N/A	N/A	02/17/2005	WMS2050217
Xylenes, Total	ND		1	0.5	µg/L	N/A	N/A	02/17/2005	WMS2050217
Methyl-t-butyl Ether	ND		1	1	µg/L	N/A	N/A	02/17/2005	WMS2050217
Ethyl-t-butyl Ether	ND		1	5	µg/L	N/A	N/A	02/17/2005	WMS2050217
tert-Butanol (TBA)	40		1	10	µg/L	N/A	N/A	02/17/2005	WMS2050217
Diisopropyl Ether	ND		1	5	µg/L	N/A	N/A	02/17/2005	WMS2050217
tert-Amyl Methyl Ether	ND		1	5	µg/L	N/A	N/A	02/17/2005	WMS2050217

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	88.0	75 - 125
Dibromofluoromethane	103	75 - 125
Toluene-d8	100	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	25	µg/L	N/A	N/A	02/17/2005	WMS2050217

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	92.1	75 - 125
Dibromofluoromethane	101	75 - 125
Toluene-d8	97.1	75 - 125

Analyzed by: Xbian

Reviewed by: MTU



# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510  
Attn: Jim Green

Project Number: 98-439-60  
Project Name: Gantner  
Date Received: 2/11/2005  
P.O. Number: 98-439-60  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 42386-003 Sample ID: Influent

Matrix: Liquid Sample Date: 2/10/2005 10:05 AM

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	9.3		1	0.5	µg/L	N/A	N/A	02/17/2005	WMS2050217
Toluene	1.7		1	0.5	µg/L	N/A	N/A	02/17/2005	WMS2050217
Ethyl Benzene	21		1	0.5	µg/L	N/A	N/A	02/17/2005	WMS2050217
Xylenes, Total	16		1	0.5	µg/L	N/A	N/A	02/17/2005	WMS2050217
Methyl-t-butyl Ether	7.0		1	1	µg/L	N/A	N/A	02/17/2005	WMS2050217
Ethyl-t-butyl Ether	ND		1	5	µg/L	N/A	N/A	02/17/2005	WMS2050217
tert-Butanol (TBA)	43		1	10	µg/L	N/A	N/A	02/17/2005	WMS2050217
Diisopropyl Ether	ND		1	5	µg/L	N/A	N/A	02/17/2005	WMS2050217
tert-Amyl Methyl Ether	ND		1	5	µg/L	N/A	N/A	02/17/2005	WMS2050217

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	90.7	75 - 125
Dibromofluoromethane	106	75 - 125
Toluene-d8	98.5	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	370		1	25	µg/L	N/A	N/A	02/17/2005	WMS2050217

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	94.9	75 - 125
Dibromofluoromethane	103	75 - 125
Toluene-d8	95.3	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

## Quality Control - Method Blank

### Liquid

Validated by: MTU - 02/17/05

QC Batch ID: WMS2050217

Analysis Date: 2/17/2005

#### Method Blank

#### Method: EPA 8260B

Parameter	Result	DF	PQLR	Units
Benzene	ND	1	0.5	µg/L
Diisopropyl Ether	ND	1	5	µg/L
Ethyl Benzene	ND	1	0.5	µg/L
Ethyl-t-butyl Ether	ND	1	5	µg/L
Methyl-t-butyl Ether	ND	1	1	µg/L
tert-Amyl Methyl Ether	ND	1	5	µg/L
tert-Butanol (TBA)	ND	1	10	µg/L
Toluene	ND	1	0.5	µg/L
Xylenes, Total	ND	1	0.5	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	87.3	75 - 125
Dibromofluoromethane	110	75 - 125
Toluene-d8	106	75 - 125

## Quality Control - Laboratory Control Spike / Duplicate Results

### Liquid

Reviewed by: MTU - 02/17/05

QC Batch ID: WMS2050217

Analysis Date: 2/17/2005

#### LCS

#### Method: EPA 8260B

Conc. Units: µg/L

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	<0.2	20.0	23	LCS	2/17/2005	115			80 - 120
Benzene	<0.2	20.0	19	LCS	2/17/2005	93.5			80 - 120
Chlorobenzene	<0.2	20.0	19	LCS	2/17/2005	93.0			80 - 120
Methyl-t-butyl Ether	<0.3	20.0	21	LCS	2/17/2005	107			80 - 120
Toluene	<0.2	20.0	19	LCS	2/17/2005	95.5			80 - 120
Trichloroethene	<0.2	20.0	19	LCS	2/17/2005	95.5			80 - 120

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	92.4	75 - 125
Dibromofluoromethane	112	75 - 125
Toluene-d8	98.2	75 - 125

#### LCSD

#### Method: EPA 8260B

Conc. Units: µg/L

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
1,1-Dichloroethene	<0.2	20.0	23	LCSD	2/17/2005	114	0.44	25.0	80 - 120
Benzene	<0.2	20.0	19	LCSD	2/17/2005	94.0	0.53	25.0	80 - 120
Chlorobenzene	<0.2	20.0	19	LCSD	2/17/2005	93.0	0.0	25.0	80 - 120
Methyl-t-butyl Ether	<0.3	20.0	22	LCSD	2/17/2005	109	1.9	25.0	80 - 120
Toluene	<0.2	20.0	19	LCSD	2/17/2005	96.5	1.0	25.0	80 - 120
Trichloroethene	<0.2	20.0	19	LCSD	2/17/2005	94.5	1.1	25.0	80 - 120

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	93.4	75 - 125
Dibromofluoromethane	113	75 - 125
Toluene-d8	99.8	75 - 125

# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

## Quality Control - Method Blank

### Liquid

Validated by: MTU - 02/17/05

QC Batch ID: WMS2050217

Analysis Date: 2/17/2005

#### Method Blank Method: GC-MS

Parameter	Result	DF	PQLR	Units
TPH as Gasoline	ND	1	25	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	91.3	75 - 125
Dibromofluoromethane	107	75 - 125
Toluene-d8	103	75 - 125

## Quality Control - Laboratory Control Spike / Duplicate Results

### Liquid

Reviewed by: MTU - 02/17/05

QC Batch ID: WMS2050217

Analysis Date: 2/17/2005

#### LCS Method: GC-MS

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	Conc. Units: µg/L	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<6	125.0	140	LCS	2/17/2005	110				65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	82	75 - 125
Dibromofluoromethane	120	75 - 125
Toluene-d8	109	75 - 125

#### LCSD Method: GC-MS

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	Conc. Units: µg/L	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<6	125.0	130	LCSD	2/17/2005	104		5.9	25.0	65 - 135

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	95.2	75 - 125
Dibromofluoromethane	112	75 - 125
Toluene-d8	99.6	75 - 125



# Entech Analytical Labs, Inc.

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Jim Green  
ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510

**Certificate ID: 42777 - 3/22/2005 3:18:28 PM**

**Order Number: 42777**  
**Project Name: Gantner**  
**Project Number: 98-439-14**

**Date Received: 3/11/2005 1:45:33 PM**  
**P.O. Number: 98-439-14**

## Certificate of Analysis - Final Report

On March 11, 2005, samples were received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

<u>Matrix</u>	<u>Test</u>	<u>Method</u>	<u>Comments</u>
Liquid	8260Petroleum	EPA 8260B	
	TPH as Gasoline - GC/MS	GC-MS	

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346).  
If you have any questions regarding this report, please call us at 408-588-0200 ext. 225.

Sincerely,



Laurie Glantz-Murphy  
Laboratory Director

# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510  
Attn: Jim Green

Project Number: 98-439-14  
Project Name: Gantner  
Date Received: 3/11/2005  
P.O. Number: 98-439-14  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab # : 42777-001 Sample ID: MW-1

Matrix: Liquid Sample Date: 3/10/2005 11:50 AM

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	µg/L	N/A	N/A	03/21/2005	WMS1050321
Toluene	ND		1	0.5	µg/L	N/A	N/A	03/21/2005	WMS1050321
Ethyl Benzene	ND		1	0.5	µg/L	N/A	N/A	03/21/2005	WMS1050321
Xylenes, Total	ND		1	0.5	µg/L	N/A	N/A	03/21/2005	WMS1050321
Methyl-t-butyl Ether	ND		1	1	µg/L	N/A	N/A	03/21/2005	WMS1050321
Ethyl-t-butyl Ether	ND		1	5	µg/L	N/A	N/A	03/21/2005	WMS1050321
tert-Butanol (TBA)	ND		1	10	µg/L	N/A	N/A	03/21/2005	WMS1050321
Diisopropyl Ether	ND		1	5	µg/L	N/A	N/A	03/21/2005	WMS1050321
tert-Amyl Methyl Ether	ND		1	5	µg/L	N/A	N/A	03/21/2005	WMS1050321

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	103	75 - 125
Dibromofluoromethane	107	75 - 125
Toluene-d8	107	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	25	µg/L	N/A	N/A	03/21/2005	WMS1050321

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	105	75 - 125
Dibromofluoromethane	111	75 - 125
Toluene-d8	111	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510  
Attn: Jim Green

Project Number: 98-439-14  
Project Name: Gantner  
Date Received: 3/11/2005  
P.O. Number: 98-439-14  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 42777-002 Sample ID: MW-2

Matrix: Liquid Sample Date: 3/10/2005 11:30 AM

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	31		2	1	µg/L	N/A	N/A	03/21/2005	WMS1050321
Toluene	2.3		2	1	µg/L	N/A	N/A	03/21/2005	WMS1050321
Ethyl Benzene	99		2	1	µg/L	N/A	N/A	03/21/2005	WMS1050321
Xylenes, Total	9.5		2	1	µg/L	N/A	N/A	03/21/2005	WMS1050321
Methyl-t-butyl Ether	ND		2	2	µg/L	N/A	N/A	03/21/2005	WMS1050321
Ethyl-t-butyl Ether	ND		2	10	µg/L	N/A	N/A	03/21/2005	WMS1050321
tert-Butanol (TBA)	ND		2	20	µg/L	N/A	N/A	03/21/2005	WMS1050321
Diisopropyl Ether	ND		2	10	µg/L	N/A	N/A	03/21/2005	WMS1050321
tert-Amyl Methyl Ether	ND		2	10	µg/L	N/A	N/A	03/21/2005	WMS1050321

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	90.7	75 - 125
Dibromofluoromethane	105	75 - 125
Toluene-d8	96.8	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	1400		2	50	µg/L	N/A	N/A	03/21/2005	WMS1050321

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	92.2	75 - 125
Dibromofluoromethane	109	75 - 125
Toluene-d8	101	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

# Entech Analytical Labs, Inc.

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Phone: (408) 588-0200

Fax: (408) 588-0201

ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510  
Attn: Jim Green

Project Number: 98-439-14  
Project Name: Gantner  
Date Received: 3/11/2005  
P.O. Number: 98-439-14  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 42777-003 Sample ID: MW-3

Matrix: Liquid Sample Date: 3/10/2005 11:05 AM

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	5300		200	100	µg/L	N/A	N/A	03/21/2005	WMS1050321
Toluene	1200		200	100	µg/L	N/A	N/A	03/21/2005	WMS1050321
Ethyl Benzene	2700		200	100	µg/L	N/A	N/A	03/21/2005	WMS1050321
Xylenes, Total	11000		200	100	µg/L	N/A	N/A	03/21/2005	WMS1050321
Methyl-t-butyl Ether	ND		200	200	µg/L	N/A	N/A	03/21/2005	WMS1050321
Ethyl-t-butyl Ether	ND		200	1000	µg/L	N/A	N/A	03/21/2005	WMS1050321
tert-Butanol (TBA)	ND		200	2000	µg/L	N/A	N/A	03/21/2005	WMS1050321
Diisopropyl Ether	ND		200	1000	µg/L	N/A	N/A	03/21/2005	WMS1050321
tert-Amyl Methyl Ether	ND		200	1000	µg/L	N/A	N/A	03/21/2005	WMS1050321

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	99.6	75 - 125
Dibromofluoromethane	104	75 - 125
Toluene-d8	102	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	41000		200	5000	µg/L	N/A	N/A	03/21/2005	WMS1050321

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	101	75 - 125
Dibromofluoromethane	108	75 - 125
Toluene-d8	106	75 - 125

Analyzed by: Xbian

Reviewed by: MTU



# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

Fax: (408) 588-0201

ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510  
Attn: Jim Green

Project Number: 98-439-14  
Project Name: Gantner  
Date Received: 3/11/2005  
P.O. Number: 98-439-14  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 42777-004

Sample ID: MW-4

Matrix: Liquid Sample Date: 3/10/2005 10:55 AM

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	860		20	10	µg/L	N/A	N/A	03/21/2005	WMS1050321
Toluene	17		20	10	µg/L	N/A	N/A	03/21/2005	WMS1050321
Ethyl Benzene	40		20	10	µg/L	N/A	N/A	03/21/2005	WMS1050321
Xylenes, Total	ND		20	10	µg/L	N/A	N/A	03/21/2005	WMS1050321
Methyl-t-butyl Ether	83		20	20	µg/L	N/A	N/A	03/21/2005	WMS1050321
Ethyl-t-butyl Ether	ND		20	100	µg/L	N/A	N/A	03/21/2005	WMS1050321
tert-Butanol (TBA)	ND		20	200	µg/L	N/A	N/A	03/21/2005	WMS1050321
Diisopropyl Ether	ND		20	100	µg/L	N/A	N/A	03/21/2005	WMS1050321
tert-Amyl Methyl Ether	ND		20	100	µg/L	N/A	N/A	03/21/2005	WMS1050321

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	102	75 - 125
Dibromofluoromethane	102	75 - 125
Toluene-d8	107	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	8000		20	500	µg/L	N/A	N/A	03/21/2005	WMS1050321

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	104	75 - 125
Dibromofluoromethane	106	75 - 125
Toluene-d8	111	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

# Entech Analytical Labs, Inc.

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Phone: (408) 588-0200

Fax: (408) 588-0201

ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510  
Attn: Jim Green

Project Number: 98-439-14  
Project Name: Gantner  
Date Received: 3/11/2005  
P.O. Number: 98-439-14  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab # : 42777-005

Sample ID: MW-5

Matrix: Liquid Sample Date: 3/10/2005 10:36 AM

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	µg/L	N/A	N/A	03/21/2005	WMS1050321
Toluene	ND		1	0.5	µg/L	N/A	N/A	03/21/2005	WMS1050321
Ethyl Benzene	ND		1	0.5	µg/L	N/A	N/A	03/21/2005	WMS1050321
Xylenes, Total	ND		1	0.5	µg/L	N/A	N/A	03/21/2005	WMS1050321
Methyl-t-butyl Ether	ND		1	1	µg/L	N/A	N/A	03/21/2005	WMS1050321
Ethyl-t-butyl Ether	ND		1	5	µg/L	N/A	N/A	03/21/2005	WMS1050321
tert-Butanol (TBA)	ND		1	10	µg/L	N/A	N/A	03/21/2005	WMS1050321
Diisopropyl Ether	ND		1	5	µg/L	N/A	N/A	03/21/2005	WMS1050321
tert-Amyl Methyl Ether	ND		1	5	µg/L	N/A	N/A	03/21/2005	WMS1050321

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	103	75 - 125
Dibromofluoromethane	105	75 - 125
Toluene-d8	104	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

Method: GC-MS - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	25	µg/L	N/A	N/A	03/21/2005	WMS1050321

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene	105	75 - 125
Dibromofluoromethane	109	75 - 125
Toluene-d8	108	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

# Entech Analytical Labs, Inc.

3334 Victor Court, Santa Clara, CA 95054 Phone: (408) 588-0200 Fax: (408) 588-0201

## Quality Control - Method Blank

### Liquid

Validated by: MTU - 03/22/05

QC Batch ID: WMS1050321

Analysis Date: 3/21/2005

#### Method Blank

Method: EPA 8260B

Parameter	Result	DF	PQLR	Units
Benzene	ND	1	0.5	µg/L
Diisopropyl Ether	ND	1	5	µg/L
Ethyl Benzene	ND	1	0.5	µg/L
Ethyl-t-butyl Ether	ND	1	5	µg/L
Methyl-t-butyl Ether	ND	1	1	µg/L
tert-Amyl Methyl Ether	ND	1	5	µg/L
tert-Butanol (TBA)	ND	1	10	µg/L
Toluene	ND	1	0.5	µg/L
Xylenes, Total	ND	1	0.5	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	101	75 - 125
Dibromofluoromethane	102	75 - 125
Toluene-d8	105	75 - 125

## Quality Control - Laboratory Control Spike / Duplicate Results

### Liquid

Reviewed by: MTU - 03/22/05

QC Batch ID: WMS1050321

Analysis Date: 3/21/2005

#### LCS Method: EPA 8260B

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
Benzene	<0.2	20.0	21	LCS	3/21/2005	103			80 - 120
Methyl-t-butyl Ether	<0.3	20.0	22	LCS	3/21/2005	112			80 - 120
Toluene	<0.2	20.0	20	LCS	3/21/2005	100			80 - 120

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	102	75 - 125
Dibromofluoromethane	101	75 - 125
Toluene-d8	98.8	75 - 125

#### LCSD Method: EPA 8260B

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
Benzene	<0.2	20.0	20	LCSD	3/21/2005	102	0.98	25.0	80 - 120
Methyl-t-butyl Ether	<0.3	20.0	22	LCSD	3/21/2005	109	2.7	25.0	80 - 120
Toluene	<0.2	20.0	20	LCSD	3/21/2005	99.5	0.50	25.0	80 - 120

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	101	75 - 125
Dibromofluoromethane	99.8	75 - 125
Toluene-d8	99.4	75 - 125

# Entech Analytical Labs, Inc.

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## Quality Control - Method Blank

### Liquid

Validated by: MTU - 03/22/05

QC Batch ID: WMS1050321

Analysis Date: 3/21/2005

#### Method Blank

Method: GC-MS

Parameter	Result	DF	PQLR	Units
TPH as Gasoline	ND	1	25	µg/L

#### Surrogate for Blank

	% Recovery	Control Limits
4-Bromofluorobenzene	103	75 - 125
Dibromofluoromethane	106	75 - 125
Toluene-d8	109	75 - 125

## Quality Control - Laboratory Control Spike / Duplicate Results

### Liquid

Reviewed by: MTU - 03/22/05

QC Batch ID: WMS1050321

Analysis Date: 3/21/2005

#### LCS Method: GC-MS

Conc. Units: µg/L

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<6	125.0	130	LCS	3/21/2005	104			65 - 135

#### Surrogate

	% Recovery	Control Limits
4-Bromofluorobenzene	105	75 - 125
Dibromofluoromethane	105	75 - 125
Toluene-d8	111	75 - 125

#### LCSD Method: GC-MS

Conc. Units: µg/L

Parameter	Blank (MDL)	Spike Amt	SpikeResult	QC Type	Analysis Date	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<6	125.0	120	LCSD	3/21/2005	98.7	5.1	25.0	65 - 135

#### Surrogate

	% Recovery	Control Limits
4-Bromofluorobenzene	105	75 - 125
Dibromofluoromethane	106	75 - 125
Toluene-d8	111	75 - 125

# Entech Analytical Labs, Inc.

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## Quality Control - Matrix Spike / Duplicate Results Liquid

Reviewed by: MTU - 03/22/05

QC Batch ID: WMS1050321

Analysis Date: 3/21/2005

Method EPA 8260B		Conc. Units: µg/L							
Parameter		Sample Result	Spike Amount	Spike Result	QC Type	Analysis Date	% Recovery	RPD	Recovery Limits
MS	SampleNumber: 42852-021								
1,1-Dichloroethene		ND	20	19.3	MS	3/21/2005	96.5		65 - 135
Benzene		ND	20	20.6	MS	3/21/2005	103		65 - 135
Chlorobenzene		ND	20	20.8	MS	3/21/2005	104		65 - 135
Methyl-t-butyl Ether		ND	20	21.5	MS	3/21/2005	108		65 - 135
Toluene		ND	20	20.9	MS	3/21/2005	105		65 - 135
Trichloroethene		0.556	20	19.9	MS	3/21/2005	96.7		65 - 135
MSD	SampleNumber: 42852-021								
1,1-Dichloroethene		ND	20	19.7	MSD	3/21/2005	98.5	2.1	25 65 - 135
Benzene		ND	20	20.8	MSD	3/21/2005	104	1.0	25 65 - 135
Chlorobenzene		ND	20	21.3	MSD	3/21/2005	107	2.4	25 65 - 135
Methyl-t-butyl Ether		ND	20	22.2	MSD	3/21/2005	111	3.2	25 65 - 135
Toluene		ND	20	21.3	MSD	3/21/2005	107	1.9	25 65 - 135
Trichloroethene		0.556	20	20.4	MSD	3/21/2005	99.2	2.5	25 65 - 135



# Entech Analytical Labs, Inc.

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Jim Green  
ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510

Certificate ID: 43109 - 4/14/2005 5:06:48 PM

**Order Number: 43109**  
**Project Name: Gantner**  
**Project Number: 98-439-60**

**Date Received: 4/7/2005 2:06:16 PM**  
**P.O. Number: 98-439-60**

## Certificate of Analysis - Final Report

On April 07, 2005, samples were received under chain of custody for analysis. Entech analyzes samples "as received" unless otherwise noted. The following results are included:

<u>Matrix</u>	<u>Test</u>	<u>Method</u>	<u>Comments</u>
Liquid	EPA 8260B Volatile-GC	EPA 8260B EPA 8015 MOD. (Purgeable)	

Entech Analytical Labs, Inc. is certified for environmental analyses by the State of California (#2346).  
If you have any questions regarding this report, please call us at 408-588-0200 ext. 225.

Sincerely,



Laurie Glantz-Murphy  
Laboratory Director

# Entech Analytical Labs, Inc.

3334 Victor Court , Santa Clara, CA 95054

Phone: (408) 588-0200

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ECM Group  
290 W. Channel Rd.  
Benicia, CA 94510  
Attn: Jim Green

Project Number: 98-439-60  
Project Name: Gantner  
Date Received: 4/7/2005  
P.O. Number: 98-439-60  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 43109-001 Sample ID: MID-A

Matrix: Liquid Sample Date: 4/5/2005 1:50 PM

Method: EPA 8015 MOD. (Purgeable)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	50	µg/L	N/A	N/A	04/07/2005	WGC4050407

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	97.8	65 - 135

Analyzed by: mruan

Reviewed by: MTU

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	µg/L	N/A	N/A	04/11/2005	WMS1050411
Toluene	ND		1	0.5	µg/L	N/A	N/A	04/11/2005	WMS1050411
Ethyl Benzene	ND		1	0.5	µg/L	N/A	N/A	04/11/2005	WMS1050411
Xylenes, Total	ND		1	0.5	µg/L	N/A	N/A	04/11/2005	WMS1050411
Methyl-t-butyl Ether	ND		1	1	µg/L	N/A	N/A	04/11/2005	WMS1050411
tert-Butyl Ethyl Ether	ND		1	5	µg/L	N/A	N/A	04/11/2005	WMS1050411
tert-Butanol (TBA)	24		1	10	µg/L	N/A	N/A	04/11/2005	WMS1050411
Diisopropyl Ether	ND		1	5	µg/L	N/A	N/A	04/11/2005	WMS1050411
tert-Amyl Methyl Ether	ND		1	5	µg/L	N/A	N/A	04/11/2005	WMS1050411

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.7	75 - 125
Dibromofluoromethane	102	75 - 125
Toluene-d8	102	75 - 125

Analyzed by: Xbian

Reviewed by: MTU



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Project Number: 98-439-60  
Project Name: Gantner  
Date Received: 4/7/2005  
P.O. Number: 98-439-60  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 43109-002

Sample ID: MID-B

Matrix: Liquid Sample Date: 4/5/2005 1:55 PM

Method: EPA 8015 MOD. (Purgeable)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	ND		1	50	µg/L	N/A	N/A	04/07/2005	WGC4050407

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	96.7	65 - 135

Analyzed by: mruan

Reviewed by: MTU

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	ND		1	0.5	µg/L	N/A	N/A	04/11/2005	WMS1050411
Toluene	ND		1	0.5	µg/L	N/A	N/A	04/11/2005	WMS1050411
Ethyl Benzene	ND		1	0.5	µg/L	N/A	N/A	04/11/2005	WMS1050411
Xylenes, Total	ND		1	0.5	µg/L	N/A	N/A	04/11/2005	WMS1050411
Methyl-t-butyl Ether	ND		1	1	µg/L	N/A	N/A	04/11/2005	WMS1050411
tert-Butyl Ethyl Ether	ND		1	5	µg/L	N/A	N/A	04/11/2005	WMS1050411
tert-Butanol (TBA)	30		1	10	µg/L	N/A	N/A	04/11/2005	WMS1050411
Diisopropyl Ether	ND		1	5	µg/L	N/A	N/A	04/11/2005	WMS1050411
tert-Amyl Methyl Ether	ND		1	5	µg/L	N/A	N/A	04/11/2005	WMS1050411

Surrogate	Surrogate Recovery	Control Limits (%)
4-Bromofluorobenzene	97.4	75 - 125
Dibromofluoromethane	104	75 - 125
Toluene-d8	101	75 - 125

Analyzed by: Xbian

Reviewed by: MTU

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Attn: Jim Green

Project Number: 98-439-60  
Project Name: Gantner  
Date Received: 4/7/2005  
P.O. Number: 98-439-60  
Sample Collected by: Client

## Certificate of Analysis - Data Report

Lab #: 43109-003 Sample ID: Influent

Matrix: Liquid Sample Date: 4/5/2005 1:35 PM

Method: EPA 8015 MOD. (Purgeable)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
TPH as Gasoline	2100		5	250	µg/L	N/A	N/A	04/07/2005	WGC4050407

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene 204\*\*\* 65 - 135

Analyzed by: mruan

Reviewed by: MTU

\*\*\* High surrogate recovery for BFB due to matrix interference

Method: EPA 8260B - Gas Chromatography/Mass Spectrometry (GC/MS)

Prep Method: EPA 5030B - Purge-and-Trap for Aqueous Samples

Parameter	Result	Flag	DF	Detection Limit	Units	Prep Date	Prep Batch	Analysis Date	QC Batch
Benzene	38		5	2.5	µg/L	N/A	N/A	04/11/2005	WMS1050411
Toluene	4.7		5	2.5	µg/L	N/A	N/A	04/11/2005	WMS1050411
Ethyl Benzene	130		5	2.5	µg/L	N/A	N/A	04/11/2005	WMS1050411
Xylenes, Total	42		5	2.5	µg/L	N/A	N/A	04/11/2005	WMS1050411
Methyl-t-butyl Ether	ND		5	5	µg/L	N/A	N/A	04/11/2005	WMS1050411
tert-Butyl Ethyl Ether	ND		5	25	µg/L	N/A	N/A	04/11/2005	WMS1050411
tert-Butanol (TBA)	ND		5	50	µg/L	N/A	N/A	04/11/2005	WMS1050411
Diisopropyl Ether	ND		5	25	µg/L	N/A	N/A	04/11/2005	WMS1050411
tert-Amyl Methyl Ether	ND		5	25	µg/L	N/A	N/A	04/11/2005	WMS1050411

Surrogate Surrogate Recovery Control Limits (%)

4-Bromofluorobenzene 90.4 75 - 125

Dibromofluoromethane 104 75 - 125

Toluene-d8 94.3 75 - 125

Analyzed by: Xbian

Reviewed by: MTU

# Entech Analytical Labs, Inc.

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## Quality Control - Method Blank Liquid

QC Batch ID: WGC4050407

Validated by: MTU - 04/12/05

QC Batch ID Analysis Date: 4/7/2005

Method Blank		Method: EPA 8015 MOD. (Purgeable)			
Parameter		Result	DF	PQLR	Units
TPH as Gasoline		ND	1	50	µg/L
Surrogate for Blank	% Recovery	Control Limits			
4-Bromofluorobenzene	96.3	65 - 135			

## Quality Control - Laboratory Control Spike / Duplicate Results Liquid

Reviewed by: MTU - 04/12/05

QC BatchID: WGC4050407

Analysis Date: 4/7/2005

Method: EPA 8015 MOD. (Purgeable)				Conc. Units: µg/L			
LCS							
Parameter	Blank (MDL)	Spike Amt	SpikeResult	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<4	250	250	102			65 - 135
Surrogate	% Recovery	Control Limits					
4-Bromofluorobenzene	102	65 - 135					

Method: EPA 8015 MOD. (Purgeable)				Conc. Units: µg/L			
LCSD							
Parameter	Blank (MDL)	Spike Amt	SpikeResult	% Recovery	RPD	RPD Limits	Recovery Limits
TPH as Gasoline	<4	250	260	104	2.2	25.0	65 - 135
Surrogate	% Recovery	Control Limits					
4-Bromofluorobenzene	97.5	65 - 135					

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## Quality Control - Method Blank Liquid

QC Batch ID: WMS1050411

Validated by: MTU - 04/12/05

QC Batch ID Analysis Date: 4/11/2005

### Method Blank Method: EPA 8260B

Parameter	Result	DF	PQLR	Units
Benzene	ND	1	0.5	µg/L
Diisopropyl Ether	ND	1	5	µg/L
Ethyl Benzene	ND	1	0.5	µg/L
Methyl-t-butyl Ether	ND	1	1	µg/L
tert-Amyl Methyl Ether	ND	1	5	µg/L
tert-Butanol (TBA)	ND	1	10	µg/L
tert-Butyl Ethyl Ether	ND	1	5	µg/L
Toluene	ND	1	0.5	µg/L
Xylenes, Total	ND	1	0.5	µg/L

Surrogate for Blank	% Recovery	Control Limits
4-Bromofluorobenzene	96.1	75 - 125
Dibromofluoromethane	103	75 - 125
Toluene-d8	102	75 - 125

## Quality Control - Laboratory Control Spike / Duplicate Results Liquid

Reviewed by: MTU - 04/12/05

QC BatchID: WMS1050411

Analysis Date: 4/11/2005

### Method: EPA 8260B

Conc. Units: µg/L

Parameter	Blank (MDL)	Spike Amt	SpikeResult	% Recovery	RPD	RPD Limits	Recovery Limits
Benzene	<0.2	20	20	99.5			80 - 120
Methyl-t-butyl Ether	<0.3	20	22	109			80 - 120
Toluene	<0.2	20	19	97.0			80 - 120

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	94.6	75 - 125
Dibromofluoromethane	96.8	75 - 125
Toluene-d8	95.7	75 - 125

### Method: EPA 8260B

Conc. Units: µg/L

Parameter	Blank (MDL)	Spike Amt	SpikeResult	% Recovery	RPD	RPD Limits	Recovery Limits
Benzene	<0.2	20	22	109	9.6	25.0	80 - 120
Methyl-t-butyl Ether	<0.3	20	24	119	8.8	25.0	80 - 120
Toluene	<0.2	20	22	108	11	25.0	80 - 120

Surrogate	% Recovery	Control Limits
4-Bromofluorobenzene	95.6	75 - 125
Dibromofluoromethane	99.5	75 - 125
Toluene-d8	95.8	75 - 125



## **Appendix E**

### **Standard Operating Procedures**

## **ECM STANDARD OPERATING PROCEDURE**

### **GROUND WATER SAMPLING**

The following describes sampling procedures used by ECM field personnel to collect and handle ground water samples. Before samples are collected, careful consideration is given to the type of analysis to be performed so that precautions are taken to prevent loss of volatile components or contamination of the sample, and to preserve the sample for subsequent analysis. Wells will be sampled no less than 24 hours after well development. Collection methods specific to ground water sampling are presented below.

Prior to sampling, each well is purged of a minimum of three well casing volumes of water using a steam-cleaned PVC bailer, or a pre-cleaned pump. Temperature, pH and electrical conductivity are measured at least three times during purging. Purging is continued until these parameters have stabilized (i.e., changes in temperature, pH or conductivity do not exceed 10%).

Ground water samples are collected from the wells/borings with steam-cleaned or disposable Teflon bailers. The water samples are decanted into the appropriate container for the analysis to be performed. Pre-preserved sample containers may be used or the analytic laboratory may add preservative to the sample upon arrival. Duplicate samples are collected from each well as a back-up sample and/or to provide quality control. The samples are labeled to include the project number, sample ID, date, preservative, and the field person's initials. The samples are placed in polyethylene bags and in an ice chest (maintained at 4 C with blue ice or ice) for transport under chain-of-custody to the laboratory.

The chain-of-custody form includes the project number, analysis requested, sample ID, date analysis and the ECM field person's name. The form is signed and dated (with the transfer time) by each person who yields or receives the samples beginning with the field personnel and ending with the laboratory personnel.